

CLAIMS

1. A laminated resist for immersion lithography using ultraviolet light of a wavelength of not less than 193 nm for exposing,
5 in which a photoresist layer (L1) and a protective layer (L2) are formed on a substrate, and the protective layer (L2) forms the outermost surface of the laminated resist and is characterized in that:
(1) an absorption coefficient in ultraviolet light of a wavelength of not less than 193 nm is not more than $1.0 \mu\text{m}^{-1}$,
10 (2) a dissolution rate in a developing solution is not less than 50 nm/sec, and
(3) a dissolution rate in pure water is not more than 10 nm/min.

2. The laminated resist for immersion lithography of Claim 1,
15 wherein the dissolution rate of the protective layer (L2) in a developing solution is not less than 100 nm/sec.

3. The laminated resist for immersion lithography of Claim 1 or 2, wherein the dissolution rate of the protective layer (L2) in pure
20 water is not more than 5 nm/min.

4. The laminated resist for immersion lithography of any of Claims 1 to 3, wherein a contact angle of water of the protective layer (L2) is not less than 70° .

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5. The laminated resist for immersion lithography of any of Claims 1 to 3, wherein a contact angle of water of the protective layer

(L2) is not less than 80°.

6. The laminated resist for immersion lithography of any of Claims 1 to 5, wherein the protective layer (L2) is a layer comprising a
5 fluorine-containing polymer (A1) having hydrophilic functional group Y.

7. The laminated resist for immersion lithography of Claim 6, wherein the hydrophilic functional group Y is at least one selected from OH group, COOH group and SO₃H group.

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8. A laminated resist for immersion lithography using ultraviolet light of a wavelength of not less than 193 nm for exposing, in which a photoresist layer (L3) is formed on a substrate as an outermost surface of the laminated resist and is characterized by
15 containing (A2) a fluorine-containing polymer having protective group Y² which can be converted to an alkali soluble group by dissociation with an acid and (B2) a photoacid generator.

9. The laminated resist for immersion lithography of Claim 8,
20 wherein a contact angle of water of the photoresist layer (L3) is not less than 70°.

10. The laminated resist for immersion lithography of Claim 8, wherein a contact angle of water of the photoresist layer (L3) is not
25 less than 80°.